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DECEMBER'S THEME:

Specifications

CHARLIE'S NOTES

Specifications are often the most important part of the construction contract. However, as designers, we often just assume that the specification writer will "get the job done". The project management team must view specifications as an important portion of the project and the specification writer as an equal member of the team from the very start of the project.

During November, I assumed the duties as Acting Chief of Engineering and Construction Division. One of the additional hats that came with those duties is the Corps Dam Safety Officer. I had a good initial meeting with the Headquarters Dam Safety Committee and am looking forward to meeting the Division and District Dam Safety Officers during scheduled visits to the field. The work in the dam safety area gives me the opportunity to see both organizations (Engineering and Construction, and Operations) working together in this important area of public safety and resource management. Also, dam safety represents one of the areas of the overall national infrastructure that will have to be addressed during the coming decade. It is important that we seek opportunities to become the Nation's Engineer team of choice to help bring our infrastructure into the 21st Century.

As we enter the Holiday Season, I wish each of you and your families a Happy Holiday Season and a Prosperous New Year. The coming year, 2000, will bring us changes of the same magnitude that faced the earlier members of the Corps of Engineers family in 1900. I encourage each of you to look forward to the challenges of the future and not back to the way we have done things in the past.

DWIGHT'S NOTES

The theme of this edition of E&C News is Specifications. I view specifications as a vital statement of the owner's intent. As such, and, because of the weight specifications carry under contract law, the Project Delivery Team (PDT) needs to get them right, every time.

The need for clear, enforceable language in contract specifications is the underlining purpose for the Corps Guide Specifications. Guide "Specs" provide an easily replicated set of "pre-approved" documents which permit owner's, PM's, designers, and construction managers to state their requirements with confidence they are in compliance with federal procurement and technical policy. Properly edited, guide specs are low risk and production oriented.

Dwight's Notes (Continued)

Under certain project conditions and source-selection procedures guide specifications can be a handicap. Guide specs are meant to serve most projects, but not all. When the government intends through its procurement to rely on private sector innovation, guide spec are probably not appropriate except for the provisions that speak to statutory or regulatory federal requirements (see "Design-Build Specifications" article below).

The Corps specifications are a widely used industry standard. I hear them complimented by industry, other federal agencies, and even private citizens on occasion. We invest several million dollars each year keeping specifications and other criteria current. I believe we have to do better at this, though, because of the speed at which technology changes and procurements vary. I ask you to use Corps guide specs liberally, but not to depend on them exclusively. Use your own knowledge of best practice in every project to make them relevant.

With the holidays now upon us, my family and I wish all of you a happy, safe holiday season. As Charlie Hess states so well above, the New Year will be full of exciting challenges that keep you and the rest of the Corps family invigorated and involved. Essayons!

(Editors' note: If you want to share your thoughts with our readers regarding Charlie's or Dwight's Notes send an email to the E&C News editors (charles.pearre@usace.army.mil or denise.massihi@usace.army.mil). We'll publish a synopsis of your comments next time).

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Specifications

TECHINFO – TECHNICAL INFORMATION ON LINE

From its humble beginnings as a remote access electronic bulletin board about ten years ago TECHNIFO has evolved to a state-of-the-art Internet resident. The bulletin board system made it possible for users to download current versions of guide specifications for military construction (CEGS). Transition to the Internet was made as soon as Internet service became available on a Corps-wide basis and opened many new possibilities. The CEGS could then be opened for reading with the click of the mouse or downloaded with another couple of clicks. An effort was then launched to make various other construction criteria documents available. A link to the SPECSINTACT site was established to permit downloading of the that software and to the National Institute of Building Sciences site to provide on line access to documents on their Construction Criteria Base system. TECHNIFO is at URL: <http://www.hnd.usace.army.mil/techinfo/index.htm>.

The ability to make comments and recommendations on construction criteria documents from your personal computer was added to TECHNIFO about a year ago. The necessity to send hard copy comments through channels has been eliminated; however, a copy of the electronic communication automatically goes to the submitter's Supervisor, Chief of Engineering / Construction, and Director of Engineering & Technical Services. Give it a try at URL: <http://www.hnd.usace.army.mil/techinfo/3078/edo3078.htm>.

One link for people interested in construction specifications is to the Corps Specifications Steering Committee (CSSC) site. The CSSC is chartered to concentrate on Corps specifications activities and provide recommendations to HQUSACE on specifications related matters. You can check this out at URL: <http://www.hnd.usace.army.mil/techinfo/cssc/csscxx.htm>.

The newest TECHNIFO feature is a page with links to organizations that publish documents referenced in the CEGS - the same organizations that are listed in the Single Master Reference List (SMRL) also available on TECHNIFO. From this page you can click and go to the organization of your choice, where you may find information about the reference publication or even the actual publication itself. You can test this feature at <http://www.hnd.usace.army.mil/techinfo/puborg.htm>.

TECHINFO is operated and maintained by Huntsville Engineering and Support Center for HQUSACE (CEMP-E and CECW-E).

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DESIGN-BUILD SPECIFICATIONS

What is a specification? Webster's Unabridged Dictionary defines it as follows: "A written or printed description of work to be done, forming part of the contract and describing qualities of material and mode of construction, and also giving dimensions and other information not shown on the drawings." In general, once a need is determined, almost every Government acquisition begins with an attempt to formulate a description of work required which will satisfy that need. The description of desired performance may be included in plans, drawings, standards, purchase descriptions, and/or specifications, and other technical conditions to be included in the solicitation. These provisions are frequently referred to collectively as "the specifications".

Who is the Specifications Writer? Unlike the draftsman who graphically portrays a requirement, the specification writer must use words to set forth the requirements for the work. Even when using Corps Guide Specifications, he or she must decide which words are needed and which are not for a complete but concise description. The specification writer must be able to translate the design concepts and ideas into effective, clear and concise language.

Design-Build Specifications Criteria - There are essentially two types of specifications criteria: prescriptive-oriented and performance-oriented.

What are prescriptive specification criteria? "It is criteria that states the design solution in terms of specific materials, systems, and processes to be utilized". Prescriptive specifications use the traditional method of specifying materials, products or construction techniques found in design-bid-build contracts. The range of acceptable products, manufacturers and techniques to be adhered to by the builder are stipulated in detail. A design-build contractor often uses prescriptive specifications to subcontract with other trades and vendors. Project contracts that use prescriptive specifications must rely on their design professionals to specify products, systems and levels of quality that will meet the customer's expectations when the construction is complete. However, design professionals are typically not in a position to guarantee results. A completed facility that does not meet the customer's and user's needs and performance requirements must be modified at the customer's expense if the cause of the problem is a prescriptive specification.

What are performance-oriented specifications? A performance specification is "...a statement of required results with criteria for verifying compliance..." without stating methods for achieving those stated results. It is also expressed in terms of an expected outcome or acceptable performance standard. This type of specification is often used in design-build criteria to articulate the owner's requirements. Rather than dictating the means, as with prescriptive specifications, performance specifications describe a minimum result. They are more formally described as a statement of required performance with criteria for measuring compliance.

In order to translate the customer's needs into a Request for Proposal (RFP) package that allows design-build firms to propose with some certainty, the RFP criteria should be as flexible and performance-oriented as possible. A performance-oriented RFP will elicit creative responses from offerors that may reduce the cost of the project in the short term and improve life cycle costs in the long term. This type of specifications criteria will allow competing teams to suggest imaginative, inventive and creative ways to meet the contract requirements by combining or reorganizing functional areas or by applying innovative design ideas, construction methods, materials, and/or systems.

Avoiding specification conflicts is critical in performance specifying. Never specify the same item in both prescriptive and performance terms. This creates a potential conflict between specified performance criteria and actual performance of the described component. Specifying a partition, for example, constructed of 2x4 studs spaced at 16 inches on center with 5/8-inch gypsum board both sides, and requiring a Sound Transmission Coefficient (STC) rating of 45, creates a conflict. The contractor would have the option of complying only with the lesser requirement. Another common conflict in performance specifying is where the design specifies a product or system as partially performance and partially prescriptive. In this case, the contractor will tend to lean towards the prescriptive portions and seek clarification on the performance aspects. As a result, the Government may be required to complete the prescriptive solution to avoid ambiguity, and will likely pay a premium for such a change.

Determining the project criteria approach early in the planning process is critical. This will set the stage for the RFP and resulting contract. The customer, users and designers must determine the suitability of the project to the performance-specifying concept. The levels of performance criteria specifying may include the following:

- a. Nominal Criteria (0% - 15% design).
- b. Partial Criteria (15% - 25% Design).
- c. Full Criteria (25% - 40% or more Design).

Nominal Performance Criteria represents the broadest levels of performance specifying. This form of criteria allows the greatest opportunity for innovation and creativity. The middle level, or Partial Criteria, allows for innovation on specific functional elements of the facilities systems, subsystems and components. The narrowest level of performance criteria, or Full Criteria, represents a prescriptive approach similar to a full design utilized in a traditional design-bid-build process. This form of specifying may be too restrictive to allow proposers to be innovative. Establishing the level of performance specifying depends on how much latitude the customer is willing to allow the design-build contractor.

The first determination the designer must make is which elements of a project, if any may be specified in performance terms. He/she should ask which elements provide a range of available options where competition among those options will be advantageous to the Government. For example, a performance specification might permit the contractor to use either a standing seam metal roofing or a 4-ply built-up roofing system, and so on.

Where a range of options is available, the following conditions favor the use of performance specifications:

- a. No single, distinct solution is recognized as an exclusive choice in terms of material, configuration or technique.
- b. Costs of options are reasonably competitive.
- c. A project element embodies a technology where state-of-the-art has not yet provided a standard solution for a given situation.
- d. Development beyond state-of-the-art is required of an existing product or construction item.
- e. Nothing exists on the market that will satisfy the owner's design or construction needs.

When preparing the Request for Proposal (RFP) for a design-build project, the Government must insure that safety, health, legal and regulatory requirements, minimum acceptable quality standards, operation and maintenance, and lessons learned are included. Some of this will be in assured terms of supplemental design guidance, including technical manuals, installation compatibility guides, Federal criteria and standards. Many other requirements have been developed over the years for design-build-bid projects and are integrated in the Corps of Engineers Guide Specifications (CEGS). Use of the CEGS is a convenient and effective tool to ensure that these requirements are incorporated in the RFP. There are two basic approaches to using the CEGS in preparing the RFP, each with its own set of advantages and disadvantages.

The first approach is to insert applicable excerpts from the CEGS in the RFP. In this case, each of the engineers and architects preparing the RFP would essentially select the appropriate CEGS for the project and edit the contents to reflect the project requirements. The features, requirements, options and alternatives that are not applicable to the project or that are to be determined exclusively by the designer/contractor would be eliminated. Those features, requirements, options and alternatives that ensure compliance with safety, health, legal and regulatory requirements, would be retained.

The second approach is to reference the CEGS in the RFP. In this case, the engineers and architects preparing the RFP would essentially develop expanded supplemental design guidance that includes all of the minimum technical requirements and instructions for the project. Those requirements adequately covered in the CEGS would be included by referencing the applicable CEGS sections. The CEGS are available to all prospective contractors through the TECHINFO Bulletin Board web site. The Government would be relieved of the need to edit the applicable CEGS and insert them as technical requirements of the RFP.

With the RFP developed by experienced Government engineering and architectural designers, either approach should result in a clear and well defined scope and a set of technical requirements that reflects the minimum needs of the Government, while providing the design-build contractor with the opportunity for innovation.

When developing the RFP, it is important to consider what type of specifications the design-build contractor will be required to use in preparing the final design.

If other than CEGS are to be allowed, the contractor must insure that the specifications follow the CSI Master Format. All specifications must be edited in sufficient detail to fully describe and demonstrate the quality of materials, the installation and performance of equipment, and the quality of workmanship. In addition, the contractor must edit the specifications such that all submittals, quality control and testing requirements typically addressed in the CEGS are included in the proposed industry specifications.

Familiarity with related data, such as previously used performance specifications, performance standards, industry standards, design guides, and federal regulations and standards, is essential in developing performance specifications. The designer must make certain that referenced standards or tests are performance-oriented. In addition, the designer must insure that a particular standard or test is valid, applicable and useful to the quality of the end product.

Most performance specifications will be augmented by drawings that further describe written performance requirements. The drawings may consist of bubble diagrams, schematic layouts, single

line plans, maximum and minimum dimensions, critical dimensions, modular increments, and component arrangements. Nominal performance criteria will dictate that these drawings be schematic in composition and content. Any drawings that represent only a suggested configuration, and do not require strict adherence, should be so noted.

Designers should avoid contradictions between the written and graphic media. Some elements cannot be communicated verbally and should be conveyed graphically. Definitive floor plan layouts may in some cases be included; however, opportunities where alternative solutions may be utilized should be clearly indicated to the potential proposers. The Government usually provides only a conceptual project design to each proposer. These drawings should provide the proposer with enough information to determine configurations, details, and quantities of the subsystem, and ultimately facilitate the development of a reliable proposal.

In the final analysis it becomes apparent that specifications play a critical role in the success of a design-build project. The customer's requirements can be more effectively conveyed through the use of design-build specifications within the RFP and in the Design-After-Award phase. The ability to integrate specifications into the design-build process presents the design-build team with the challenge of approaching the solution from a different perspective. It requires the team to be innovative and imaginative in a time when our customers demand better delivery methods due to diminishing resources and a requirement for higher quality.

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SCHEDULING SOFTWARE KEEPS LITTLE ROCK DISTRICT PROJECTS ON-TRACK

Little Rock District has found an effective tool for scheduling and tracking projects. MS Project puts clear information about overall workload and district capabilities at manager's fingertips.

Several years ago, the Specifications Unit within Design Branch began using a calendar feature that came with the GroupWise e-mail software. But when the district switched from GroupWise to Microsoft Outlook, the calendar system within Outlook was found to be too limited. New scheduling software had to be found.

After researching available scheduling software on the Internet, the unit chose Microsoft Project. One of the first things that we needed was to develop an award schedule. MS Project made creating the schedule much easier than before. The first schedules were very crude, but they showed the dates that Specifications Unit needed. Before long, the entire design schedule also was put into electronic format using MS Project.

Little Rock District is currently trying to expand the use of MS Project for more information sharing and to help assign resources to projects. Project managers are able to incorporate the projected dates into their design schedule and post it on the LAN in a shared directory. By making the design schedules available on the LAN, we no longer have to distribute hard copies of the schedules.

Design Branch has started to include resources necessary for the project in the project schedule. Resourcing projects at this early stage has improved coordination within the technical offices because the resource pool includes the e-mail addresses of people who are involved in the project.

The utilities within MS Project make it easy to share information and keep interested parties informed. We can tell other offices when the schedule is available on the LAN. There also is a way to request job status updates from the team members and notify folks of jobs that have to be slipped.

Next we created multi-project files for each type of work such as military, civil or other. With these roll-up files, we can look at the branch's workload and resource allocations. This gives us the big and small picture of our workload. The feature allows us to look at the total branch's workload or to just see a specific portion.

Each section chief within Design Branch can create a schedule of all their section's projects. This helps them manage their personnel more effectively. Branch chiefs within Engineering and Construction Division make better decisions about how to utilize in-house resources and A-E resources to accomplish design requirements.

While our use of MS Project to schedule and track projects is still in the developmental phase, this is becoming an invaluable tool that helps us manage our business processes better. It keeps our in-house customers informed about project status and helps produce a better end product.

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SPECIFICATIONS CONFERENCE

A Specifications Conference is scheduled for 29 February and 1 March 2000 in San Antonio, TX and a lot of changes have occurred since the last conference in 1994. The primary specification engineer from each district should plan to attend or send an alternate. Details on the conference will be provided soon. If you need information contact your MSC Committee representation or visit the TECHINFO web site in January.

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District of the Month

ALBUQUERQUE DISTRICT

The Albuquerque District is a full-service district, with expertise in all forms of engineering, planning, design, construction, contracting, and environmental needs. Whether it's a large dam, miles of levees, a nuclear waste storage facility, or a myriad of military construction projects, Albuquerque District has the experience and capability to get the job done right.

It is the fourth largest district in geographic size in the Corps of Engineers, covering all of New Mexico, about one-third of Colorado and one-fifth of Texas. A component of the South Pacific Division, Albuquerque District operates and maintains flood control facilities and related recreation areas throughout New Mexico and southern Colorado. The District also provides design, construction, and operations and maintenance services to three New Mexico Air Force Bases – Cannon Air Force Base in Clovis, Holloman Air Force Base in Alamogordo and Kirtland Air Force Base in Albuquerque. This year for the third time in the past seven years Albuquerque District was honored for its work with the U.S. Air Force. The District was named Air Combat Command's Design Agent of the Year for

1999. Albuquerque District was named the Air Force's Design Agent of the Year in 1997 and received both Design Agent of the Year and Construction Agent of the Year honors from the Air Force in 1992. Several factors have contributed to the recognition Albuquerque District continually receives for its work with the Air Force. At Holloman Air Force Base, the District managed design and construction for the "beddown" of the F-117A Stealth fighter for the U.S. Air Force and is currently in the second phase of the Tornado "beddown" program for the German Air Force. The relocation of the Stealth fighter planes, best remembered for their superior performance during the Gulf War, comprised a two-year \$88 million construction program. These projects included high-tech, four-bay hangars with in-hangar refueling capability, pararescue facilities, airfield lighting and control tower, an airfield maintenance complex, and a munitions complex. The \$50 million F-117A Stealth maintenance hangar project was completed ahead of schedule and represented one of many partnering successes for the District. In this case, partnering with Hensel Phelps Construction resulted in a complete commitment by all parties to get the job done under budget and ahead of schedule. Hensel Phelps worked more than 530,000 man-hours on the project without a single lost-time accident.

Managing the German Air Force's Tornado "beddown" program has been a unique experience for the Corps. The program is very dynamic and its scope has changed constantly due to functional requirement changes during the design process. Despite these changes, Albuquerque District managed to minimize the time lost and still design all 20 projects for under the total amount programmed. The District is currently managing \$100 million worth of construction in support of the second phase of the German Tornado "beddown" program. These projects include a six-bay maintenance hangar, three parking shelters to each hold six aircraft, and a jet engine workshop – all designed in-house. The approximately 75,000 square-foot maintenance hangar will contain all facilities necessary to maintain every part of the aircraft, including a hydraulic shop, paint booth and battery charging rooms. In addition to those facilities, there will be a flight simulator building, supply warehouse, three dormitory buildings, a wing headquarters building, a munitions storage and maintenance facility, aircraft ground equipment vehicle maintenance shop, liquid oxygen maintenance facility and a 25-acre aircraft parking apron. All the construction is scheduled to be completed in late 2000, when 800 additional German military personnel and their families will be stationed at Holloman.

Albuquerque District also continues to have a commanding presence at Kirtland Air Force Base. It is currently in the design phase of a Nuclear Weapons Integration Facility there and the construction phase of a Theatre Air Command and Control Simulation Facility (TACCSF) and an Advanced Laser Facility (ALF). It has also nearly completed construction of the Manzano Bridge on the base's East Side. All are design/build projects.

For the Nuclear Weapons Integration Facility, the Albuquerque District developed a three-dimensional model in-house for Air Force Materiel Command (AFMC) because that organization prefers that method to visualize its facilities. The Albuquerque District was one of the first Corps of Engineers' districts to do this kind of work for AFMC and the organization was delighted the District was able to respond to the request. The District developed the modeling of the 36,000 square-foot building using a basic microstation program showing all streets, surrounding buildings and landscaping. In addition, the District also simulated a "fly-through," showing a panoramic view of the building from all sides. Awarded in August 1999, the Nuclear Weapons Integration Facility will provide a modern workplace in which to safely and efficiently track the storage of nuclear weapons.

The Theatre Air Command and Control Simulation Facility (TACCSF) currently under construction will be one of the first Air Force facilities in the country to act as a hub for simulating joint forces war.

Through computerized data links, it will make it possible to connect anywhere in the world and simulate war. For example, through visual simulation, it will be possible for an Air Force pilot anywhere in this country to link up to a Navy pilot in another country and feel like he's flying right next to him. The point is to insert the human element into a command and control battle scenario for purposes of mission planning and system testing. Communication requirements for the virtual reality "esque" facility will be the largest of any facility currently located at Kirtland. The two-story, 80,000 square-foot facility will contain a Secured Compartmentalized Information Facility (SCIF) on the first floor. Inside the SCIF, top-secret simulations can take place and open storage of documents is allowed because of the high level of security required to gain access. Twenty-five thousand square-feet of the building can become a SCIF simply by upgrading procedures, such as reprogramming locks and card readers.

The \$8.5 million Advanced Laser Facility (ALF) is scheduled for completion in January 2000. It will be used by the Air Force Research Laboratory to develop laser technology for the Air Force's airborne laser program. The lasers are mounted on 747's and used to explode missiles in the air. This facility is where they will develop the electronic and chemical lasers. The 20,000 square-foot facility also includes an 8,000 square-foot laser testing area. The high degree of technology necessary to design and build the facility is roughly equivalent to that required to build a hospital. The volatile chemical piping and tubing that must be included in the construction make it a very high-tech building.

Completion of the Manzano Bridge at Kirtland is scheduled for the end of December 1999. The bridge is replacing an old bridge that was limited by its load bearing capacity. Albuquerque Underground, the contractor, came up with new innovations above the 100 percent design. It improved the bridge structurally, increasing the depth of girders, raising the bridge and allowing it to be shortened, as well as upgrading approaches to it. The bridge is unusual for a military construction project in that it uses horizontal rather than vertical construction, much like civil works projects.

Although activities at Cannon Air Force Base have quieted since the "beddown" on the F-111 fighter planes, the Albuquerque District continues to be a major player in the base's military construction efforts. The Logistics Administrative Facility for Air Combat Command is a prime example. The project posed challenges such as the facility's location on a long, narrow strip of land with a ditch running through the center and a Request for Proposal (RFP) that no longer met user needs. However, all problems were successfully resolved to the satisfaction of all parties, including the 170 occupants who moved in last May. The 42,000 square-foot facility houses four agencies: Logistics, Contracting, Transportation, and Supply. As personnel and mission changes affected these organizations, the original RFP design had to be modified to accommodate new requirements. Walls were removed and the floorplan was changed to create an open, flexible space. A procedure known as commissioning was also used to test the facility's mechanical and electrical systems. Commissioning starts up and tests all these systems at once rather than individually and is an excellent way to ensure all systems function properly together.

Civil works, although not currently as large a program for the District as its military one, is still very viable and one in which the District has a wealth of experience. This summer U.S. Sen. Pete Domenici and Dr. Joseph Westphal, assistant secretary of the Army, attended a groundbreaking ceremony for a three-channel system flood control project in Alamogordo, New Mexico. The \$47 million project, designed by the Albuquerque District, will provide protection for 4,257 structures that are currently in the flood plain. The design uses existing channels in the city and allows for new channels to be incorporated into its interior drainage designs. Construction of the project will be awarded in

November 2000 and the plans and specifications will be completed in September 2000. The city is currently beginning their land acquisition.

Albuquerque District and the city of Las Cruces, New Mexico have entered into a Project Cooperation Agreement (PCA) to construct an \$8.8 million flood control project. The project will consist of enlarging and modifying two existing detention basins and an irrigation canal, which will provide additional flood protection for the city. It will remove more than 500 homes and businesses from the 100-year flood plain and significantly reduce flooding impact for 1800 more. It is scheduled for construction in 2000 and will take 14 months to complete.

Phase II of the Lomaland project in El Paso should be complete by the end of December 2000. Lomaland is part of the Albuquerque District's southeast area El Paso Flood Control Project, which began in 1988 with the construction of Phelps Dodge Basin. That was followed by construction of the Americas Basin and Bluff Channel. Lomaland is located immediately east of Bluff Channel. Phase III of Lomaland is scheduled for award in March 2000. The city of El Paso will also be formally requesting that the District begin investigating the possibility of making improvements to the Mesa Drain. These improvements will act as part of the total southeast El Paso system. The southeast area projects represent the final phase of the El Paso Flood Control Project, which began in the early 1970's with the central area projects.

Support for Others is another large part of Albuquerque District's workload. The District's work for the Immigration and Naturalization Service (INS) is an excellent example of making a mountain out of a molehill. It began a couple of years ago with a few relatively small projects and has steadily grown into a mountain of work that continues to expand. The District will soon complete all work on the agency's El Paso Service Processing Center. The Deportation/Executive Office of Immigration Review (EOIR) building is complete and the support buildings are nearly complete.

Design for a new 100-man border patrol station at Alpine, Texas will begin in early 2000. The facilities to be built include office and operation spaces, holding areas, vehicle maintenance, fuel island, car wash canopy, emergency generator, communication tower and kennel.

The Presidio Housing project for the U.S. Border Patrol in Texas is nearly finished. The project consists of design, construction and land acquisition for 20 housing units to be used by Border Patrol and Customs personnel and their families stationed there.

The Albuquerque District is currently in the first phase of the \$15 million Yuma Sector Headquarters in Arizona. It is building a 40,670 square-foot vehicle maintenance and storage warehouse facility at a 20-acre site there. The project's next phase includes the construction of a 31,700 square-foot headquarters building, which is now in the design phase. Also included in the second phase is a fuel island and car wash. The District plans to award that contract in October 2000.

The New Mexico Army National Guard is another large Support for Others customer for the District. The Albuquerque District is currently designing a road and gate entrance for its Santa Fe headquarters. Construction of improvements to the Guard's Armory site in Albuquerque is completed. For Fiscal Year 2000, the National Guard has requested design services from the District for several sites around the state.

The District's Family Housing program epitomizes the "One Door to the Corps" concept, where it has been sharing responsibilities with other districts such as Kansas City and Tulsa Districts in executing these projects. Albuquerque District is working with Kansas City District to complete an \$18 million family housing project at Whiteman Air Force Base in Missouri. Kansas City District procured the real estate and is managing construction while Albuquerque District is performing design reviews and executing project management. The District partnered with Tulsa District to build 180 single family and duplex homes for Air Education Training Command (AETC) at Altus Air Force Base in Oklahoma. Construction on that project is nearing completion.

Albuquerque District also manages a high-profile acequia program, which are mainly diversion dams that serve 30 to 40 irrigators. Acequias originated in New Mexico in the 17th Century, when the Spaniards settled there and brought their irrigation techniques with them. The program is high profile because of its historical and cultural significance and is unique to New Mexico. To date, the District has spent \$11.5 million since the program began in 1986. \$1.5 million has been appropriated for fiscal year 2000.

As we all know, no project can get off the ground without contracting services, and Albuquerque District has a full-range of these services to meet the customer's needs. It currently has several Indefinite Delivery Indefinite Quantity (IDIQ) contracts in place for a variety of services. These types of contracts simplify and speed up the entire contracting process. IDIQ contracts enable the contract specialist to issue task orders for a variety of services as part of the main contract. Task orders can be completed in a matter of days versus the weeks or months that it can take to initiate another contract. Right now, Albuquerque District has IDIQ contracts in place for construction, AE services, environmental engineering, cultural resources services, drilling, mapping, geotechnical engineering and hydrology and hydraulic work.

Nearly all of you have heard of the children's book "The Little Engine That Could." It's a story about a train and a seemingly insurmountable mountain. It's also a story about perseverance and the importance of being positive. That is very much analogous to the Albuquerque District. With only about 330 employees, it may be a small District, but it doesn't let anything stand in the way of accomplishing its many diverse goals for its customers and our nation.

POC: JOAN MIER, CESPA-PA, 505-342-3171

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Update

DEPARTMENT OF THE ARMY (DA) FACILITIES STANDARDIZATION PROGRAM

On December 31, 1999 we not only celebrate the end of the calendar year (and to some the end of the 20th century), but also celebrate the retirement of two senior architects in the Corps of Engineers. After thirty plus years of dedicated service, Mr. Bob Riffel, Chief, Architectural Branch, US Army Engineering and Support Center, Huntsville and Mr. Tom Verdel, Assistant Chief, Engineering and Construction Division, US Army Engineer District, Tulsa are saying good bye. Since the inception of the DA Facilities Standardization Program, Bob and Tom have been key players in the development of quality DA standard design packages that support the Army soldiers and their families. Under Bob's leadership, DA standard design packages for child development centers and playgrounds, physical fitness centers, fire stations, hazardous material storage facilities, youth activities centers and close combat tactical trainer were developed. As a charter member of the USACE Facilities Standardization

Committee, Bob also provided invaluable experience and direction to the committee in support of the program. Under Tom's leadership, DA standard design packages for unaccompanied officer housing and trainee barracks were developed. The recently completed revised DA standard design package for trainee barracks was praised by Headquarters, Training and Doctrine Command as a facility design that will allow them to accomplish their training mission for the 21st century. Bob and Tom have ensured that the program will continue to provide quality facilities needed by the Army to meet its varied missions by being mentors to their staff architects and instilling in them their competency, leadership/management skills, and professionalism. We wish Bob and Tom all the best of health and happiness in their retirement.

POC: AL YOUNG, CEMP-ET, 202-761-0435

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TECHNICAL CRITERIA FOR DESIGN-BUILD ACQUISITION

Headquarters is assembling a team to develop a technical criteria document for Design-Build acquisitions. The objective is to develop a concise, user-friendly method of presenting the specific technical requirements that must appear in an RFP. This is planned as a fast track effort, producing a useable product by the 3rd quarter of this FY.

This will be a multi-disciplinary, multi-functional effort and participation by many people will be required, especially from District and field offices with Design-Build experience. Many offices have already responded to a Headquarters request for knowledgeable points of contact. We will be requesting assistance from many of these experienced field team members, on a cost reimbursable basis.

Bob Billmyre (CEMP-ED) is assigned the lead in this effort with Rick Dahnke (CEMP-ED) and Mark Grammer (CEMP-EC) as permanent members of the development team. Any suggestions or lessons-learned that could benefit this endeavor should be forwarded to the team.

Others federal agencies have expressed interest in joining this effort but discussions are still in preliminary stages.

POC: ROBERT BILLMYRE, CEMP-ED, 202-761-8623

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TRAINEE BARRACKS STANDARD DESIGN UPDATE

Unaccompanied Enlisted Personnel Housing (UEPH) may be the most active military construction program at the Army installations for now. However, Trainee Barracks may soon become the next most critical MCA program with the Army's current emphasis on a safe and secure gender integrated training environment and the inventory of antiquated trainee barracks buildings. A new design for a Basic Combat Trainee (BCT) Complex has been approved by the Headquarters, Training and Doctrine Command (HQTRADOC) and will become the Department of the Army (DA) standard design when it is approved by the DA Facilities Standardization Committee and the Vice Chief of Staff, Army. The proposed complex (31,000+ gross square meters/ 330,000+ gross square feet) contains housing, administrative and other support functions organic to the training mission and needs of the 21st century BCT battalion. It is modeled after the neighborhood plan concept utilized for the UEPH standard design.

HQTRADOC plans to program at least one new BCT complex in each of the five DA basic training installations over the next 2-5 years. These installations are Fort Benning, Fort Jackson, Fort Leonard

Wood, Fort Knox, and Fort Sill. The Fort Leonard Wood (FLW), FY 01 MCA trainee barracks project with a programmed amount of \$65 million is already underway. Recently, Kansas City District held a charrette at FLW to adapt the standard design to the project site conditions. Kansas City District did a great job of managing the charrette with some 60+ participants from different organizations including representatives of HQTRADOC, HQUSACE, OACSIM, A-E, Division and District design personnel and the installation. Site planning, force protection and cost control were among the main topics of discussion at the meeting. The parametric cost estimate is below the PA and construction duration is expected to be about 23 months.

POC: AMITAVA GHOSH, CEMP-ET, 202-761-8603

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KOCAELI AND CHI CHI EARTHQUAKES BRIEFING

The Engineering Research and Development Center team that conducted field reconnaissance of the damage caused by the earthquakes in Turkey and Taiwan this year presented a briefing to the Interagency Committee on Dam Safety (ICODS) and to HQUSACE Engineering personnel during the month of November 1999. Those briefings have been converted into a series of Internet web pages and are available for all interested personnel at <http://www.liquefaction.com/eq99/>.

POC: RICHARD OLSEN, CEERD-GG-H, 601-634-3152

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Dam Safety

ICODS TECHNICAL SEMINAR NO.7, SPILLWAY GATES – AN IMPORTANT ASPECT OF DAM SAFETY

The Interagency Committee on Dams (ICODS), which consists of representatives from 10 Federal departments and agencies, is pleased to present its Technical Seminar #7 - Spillway Gates-An Important Aspect of Dam Safety. The seminar will be February 23-25, 2000 at the Emergency Management Institute, National Emergency Training Center in Emmitsburg, Maryland.

Spillway Gates-An Important Aspect of Dam Safety will provide an interesting forum for sharing the latest information about spillway gate inspection, analysis, remediation and operation and maintenance. The seminar will bring together an impressive panel of experts from the Bureau of Reclamation, TVA, the Corps of Engineers, FERC, and private practice, Federal and State regulators, and private owners and operators for what promises to be the most comprehensive seminar on spillway gates to date. Individual presentations will be complemented by panel discussions where the audience can interact with recognized experts in pursuit of innovative ideas and concepts.

The seminar is open to all, including but not limited to, State and Federal dam safety officials, private owners, consultants and academia. Please join us in this low cost, timely and important professional development opportunity.

Several significant spillway gate failures in the past few years have focused overdue attention on spillway gates and gate operating equipment. Many dam owners are engaged in the close examination of their spillway gate procedures including inspection, analysis and operation and maintenance. This revitalized effort to insure the safety of spillway gates has had positive results:

- A clearer understanding of the importance of spillway gates in a dam safety evaluation.
- Deteriorated or structurally deficient gates are being repaired before failure occurs.

-
- Development of analysis and monitoring methods to confirm the adequacy of gate designs.
 - An appreciation of the importance of adequate maintenance, operation, lubrication and testing of the entire spillway gate operating system.

To register for the seminar, please complete the General Admissions Application Short form (75-5a) and return it to the Admissions Office no later than January 22, 2000. The application and more information can be accessed from our web site at: <http://www.fema.gov/emi/dsts.html>.

The registration form may be faxed to 301-447-1441 or mailed to National Emergency Training Center, Admissions Office, 16825 South Seton Avenue, Emmitsburg, Maryland 21727. There is no registration fee.

Rooms will be available to participants on a 'first apply - first serve' basis. State employees will not be charged for their rooms. Federal employees and private sector employees will be charged about \$30.00 per night. Please note that National Emergency Training Center Housing Office is unable to accept credit cards at this time. Payment must be in cash or check.

All participants staying on-campus must purchase meal tickets for the NETC dining hall. The tickets cost \$15.76 per day for all-you-can-eat breakfast, lunch, and dinner. The cafeteria does accept MC/Visa.

For this seminar, NETC provides shuttle bus service from Baltimore Washington International, Reagan National or Dulles Airports at certain times on Tuesday, February 22. The shuttles will return participants to the airport approximately 1 PM on Friday, February 25. Information on this service will be sent along with other information to all participants who apply. Participants who wish to utilize this service must notify the NETC transportation office in advance.

For More Information Contact: Mr. Joe Bills, Seminar Coordinator, 301-447-1356; FAX: 301-447-1598; email: joe.bills@fema.gov.

POC: ROBERT BANK, CECW-EP, 202-761-1660

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ASDSO 2000 SOUTHEAST REGIONAL BIENNIAL CONFERENCE

The Southeast Region of the Association of State Dam Safety Officials invites you to attend its 2000 Biennial Regional Conference, January 23-26 at the Four Points Sheraton Hotel East in Tampa, Florida. The program will focus on issues of importance to dam owners, government officials, and engineers in the southeast states. Presentation topics include dam design and construction, inspection and maintenance, failure analysis, emergency dam repair, dam removal, and many others.

The conference will be held at the Four Points Hotel Sheraton East, a first class business hotel near downtown Tampa. The Four Points Sheraton has an outdoor pool, fitness center, and spa, and is just 10 minutes from many area attractions, including Busch Gardens. Complimentary airport transportation and free parking are available. A block of rooms is being held at the ASDSO group rate of \$103 single or double occupancy. Please call the Four Points Sheraton at (813) 626-0999 to make reservations before December 23, 1999 and mention the ASDSO conference in order to receive the discounted room rate.

The conference cost is \$90 for ASDSO members for individuals registering before 14 January 2000. The complete conference brochure and registration form can be found on the ASDSO home page at <http://www.damsafety.org>.

POC: CHARLES PEARRE, CECW-EP, 202-761-4531

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CALL FOR ABSTRACTS FOR DAM SAFETY 2000

ASDSO invites all persons interested in safety of dams to submit abstracts of papers to be considered for presentation at the ASDSO 17th Annual Conference. The Conference will be held September 26-29, 2000 at the Westin Hotel, Providence, Rhode Island. Engineers, geologists, hydrologists, dam owners, state, local, and federal officials, industry representatives and others working in the field of dam safety are invited to share their experiences in all aspects of dam safety. Conference presentations are scheduled for 30 minutes each. Authors may chose from, but are not limited to the following general subject areas: (Specific topics are suggested for guidance only).

- Hydrology & Hydraulics -- Such as risk analysis/assessment, paleohydrology, PMF/PMP, overtopping, and spillways.
- Geotechnical Issues -- Such as grouting, rock anchors, liquifaction, slope stability analysis/design, seismic issues, seepage, and instrumentation/monitoring.
- Emergency Preparedness -- Such as flood warning systems, EAP's, dambreak applications, and disaster mitigation.
- Dam Design & Rehabilitation -- Such as case studies in rehabilitation, (small dams case studies needed, including lessons learned), underwater operations, RCC, spillways, and instrumentation/monitoring.
- Dam Inspections -- Such as outlet works, radial gates, dam owner experiences and solutions, and inspection techniques.
- Removal of Dams -- Such as dam breach issues, innovative engineering and construction techniques, and environmental issues.
- Dam Safety Regulatory Programs -- State programs, federal programs, public relations, programs in other countries.
- Dam Owner Issues -- Lake management, environmental issues, shoreline erosion, remote operations, public awareness, and public safety at dams.
- Dam Construction -- Such as environmental issues, contractor experiences, spillways, instrumentation/monitoring, and general case studies.
- General Information/Multi-Category -- Such topics as computer applications, current technical research, and model testing.

Abstracts, one-page, single-spaced, must be submitted to ASDSO prior to the established deadline of March 1, 2000. Biographical sketches of all authors, maximum one-page, single-spaced, in paragraph form, must also accompany abstracts. No resumes will be accepted. Full mailing address and telephone numbers must be included with each biographical sketch. An application form should be attached to each abstract. The form is available for download at <http://www.damsafety.org>.

The Dam Safety 2000 Program Committee will review all submittals. The Board of Directors approves abstracts for inclusion in the conference program upon recommendation by the Program Committee. Announcements of selected papers will be made on April 23, 2000.

Full papers will be required for publication in the conference proceedings. Papers (limit 12 pages in length including photos and graphics) will be due on July 15, 2000. Further instructions for speaker preparation will be provided upon notification of a paper's acceptance.

Corps Engineering and Construction personnel who work with Dam Safety are encouraged to submit abstracts and papers for Dam Safety 2000.

POC: CHARLES PEARRE, CECW-EP, 202-761-4531

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Information

TRANSPORTATION SYSTEMS 2000 (TS2K) WORKSHOP

The Army, Air Force and Navy welcome you to participate in the Transportation Systems 2000 Workshop. The workshop is to be held at the Holiday Inn Select, San Antonio, Texas on February 28 - March 3, 2000. The objective of the workshop is to provide information and training on military airfields, roads, and railroads through technical sessions and "hands-on" seminars. The workshop will be of interest to pavement and railroad design, construction and maintenance engineers. The topics for the workshop sessions include pavement maintenance, repair, evaluation, design, management, materials, drainage, construction, criteria, the C-17, geotechnical, bridges, airfield lighting, marking, aircraft arresting gear and railroads.

The workshop will start with registration and exhibitors set up on Sunday. Seminars, which may be limited in size, cover the topics in more detail, and in some instances provide "hands-on" training, are scheduled for Monday and Friday. The workshop sessions will start with a keynote speaker on Tuesday morning and continue Thursday afternoon. The seminars will be 1/2 to full day in length compared to the workshop sessions which last 2 hours with approximately 4 speakers per session. The final session will be a panel discussion will be made up of experts from each agency to answer questions on various topics. Workshop participants will have the opportunity to submit questions with their registration package, bring them to the workshop, or just ask them during the discussion.

We would like to have a few questions ahead of time to make sure we have the appropriate experts available and also for the panel to prepare. Topic ideas generated by the Steering Committee thus far include subsurface drainage, construction problems, and numbering system for DOD documents.

More information about the Workshop can be obtained from the TS2K web site at www.transportation2000.com. On-line registration is available at www.implanners.com/ts2k or if you

prefer you can also download the registration package from this site and mail in your registration. Registration for the workshop is due by February 7, 2000. Hotel reservations should be made by January 27, 2000. For information on making hotel reservations please consult the registration package.

POC: MARY ADOLF, CENWO-ED-TX, 402-221-4265

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LOGISTICS ADMINISTRATIVE FACILITY - CANNON AIR FORCE BASE

“Inspiring” is the word Marc Schiff of DCSW Architects used to describe working with the Albuquerque District on Air Combat Command’s Logistics Administrative Facility at Cannon Air Force Base. The project posed challenges from the beginning, with the 42,000 square-foot facility’s location on a long, narrow strip of land with a drainage ditch running through the center and a Request for Proposal (RFP) that no longer met user needs. However, since the \$5.9 million facility has been completed and its approximately 170 occupants began settling in last May, all parties seem more than satisfied with the results.

“The biggest complaint I’ve heard is ‘I have to walk upstairs to the breakroom,’” according to Col. Jim Johnson, Logistics Commander. “We never even *had* a breakroom at our previous location.”

The facility currently houses four different agencies: Logistics, Contracting, Transportation, and Supply according to Max Pastor, Cannon’s resident engineer. As personnel and mission changes affected these organizations, the original RFP design had to be modified to accommodate new requirements. Walls were removed and the floorplan was changed to create an open, flexible space. In spite of these changes, the building was completed on time.

All parties involved gave much credit to partnering and encouraging open communication. “The partnering went extremely well,” Johnson said. “The people in the offices actually had input into the design. They had a voice in things like where their computer connections, power connections and things like that should be located. DCSW took us all out to look at a facility with very similar features to this one so that we could actually see the results we would get. This all came out of partnering.” A hardhat was actually set aside for Johnson at the construction site and he was able to keep abreast of all issues as they occurred.

Jaynes Corp. was awarded the design/build contract and Mark Mullane, its project manager, solicited opinions from all involved and engaged in heavy use of electronic mail to facilitate communication rather than opting for a formal Request for Information (RFI), according to Joan Coffing, the project’s technical leader.

“We couldn’t have accomplished this without close teamwork,” Mullane said. “It was a real challenge to have changes right in the middle of the design phase and to make sure the user got what they wanted without busting the bank.” He said he and Pastor worked very closely tracking the status of all changes and getting information back to the field on time.

“Planning and cost control were big challenges,” agreed Schiff. DCSW and Jaynes had worked together previously on 12 design/build projects, so the two firms had a lot of history in that arena. “Jaynes is very quality and customer oriented,” Schiff said. “It also helped communications a lot that we know the Corps and its standards. We like working with the Corps and I hope we and Jaynes can do more design/builds for the Corps in the future.”

A procedure known as commissioning, which is starting up and testing all mechanical and electrical systems at once rather than testing individual systems, was used on the facility much to the satisfaction of all involved.

“Commissioning is a smart idea,” Mullane said. “It’s a good way to force people to make sure all the I’s are dotted and T’s are crossed.”

“It’s very important because it proves everything is working together as a system,” agreed Pastor. “It’s highly beneficial to the user and gives you a really good feeling as to how the system works.” It also reduces warranty issues and Pastor would like to see the procedure used on all large projects in the future.

The finished product is the most substantial building one sees upon entering the base, so appearance is an important factor, according to Art Maestas, the District’s project manager.

“This facility has a different look architecturally from other facilities on the base,” Pastor said. It also has quite a few amenities, such as individually controlled heating and cooling in each office.

“I have been involved in several construction projects throughout my career and this was way above any of them,” Johnson said. “It’s a real success story for partnering. Max Pastor is a dream to work with, as was Joan Coffing.”

“This project was a win/win situation for everybody,” Pastor agreed. “We had some real challenges throughout but through open communication and formal partnering we were able to work through everything.”

“This project totally counters any underlying conventional wisdom that says the government doesn’t do quality projects,” Schiff said.

“It was very refreshing to see how the Corps, the civil engineering staff, contractors and subcontractors worked together,” Johnson said. And perhaps the most striking feature lies in the outlook of the people who work there.

“Folks are very upbeat,” said Johnson.

POC: JOAN MIER, CESPA-PA, 505-342-3171

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FY00 CADD/GIS SYMPOSIUM

The tri-annual CADD/GIS Symposium, sponsored by the CADD/GIS Technology Center for Facilities, Infrastructure, and Environment (the Center), will be held 23-25 May 2000 in St. Louis, MO. The Center is preparing a preliminary brochure, which should be available in early December. This brochure will outline proposed program topics, technical sessions, and workshops to be presented at the Symposium. The brochure will include a request for abstracts of technical papers to be presented during the technical sessions, which will have to be submitted by 28 February. If you can develop a technical paper on a subject related to the use of CADD, GIS, or CAFM technologies, which would assist other districts and/or DOD/Federal agencies in performing their duties, please prepare to submit an abstract after the first of the year. Preliminary information on the Symposium is posted on

the Center web site under "Events/Training." Additional information will be posted as it becomes available. The center web site is at <http://tsc.wes.army.mil>.

POC: JEAN MCGINN, CEMP-EE, 202-761-1052

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Architect's Forum

FUTURE EDITIONS OF THE USACE ARCHITECT'S FORUM SECTION

Future editions of the Architect's Forum will include profiles of USACE architects, a "Where are they Now?" series, examples of successful projects; new about Interior Designers and Landscape Architects, etc. Your participation is absolutely essential. Send your ideas, recommendations and proposed articles to lawrence.p.delaney@usace.army.mil or contact Denise Massihi (CEMP-EC) at 202-761-1380 or Charles Pearre (CECW-EP) at 202-761-4531 for additional information.

POC: LAWRENCE P. DELANEY, AIA, CEMP-E, 202-761-1545

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Training

FY2000 PROSPECT TRAINING COURSES

Below are FY2000 PROSPECT courses for which limited spaces are available. If interested in enrolling in any of these courses, please complete a DD Form 1556 and send to the Registrar's Office in Huntsville. Points of contact are Jackie Moore or Sherry Whitaker (256-895-7421/7425).

Additional information about these courses can be found in the FY2000 Purple Book (CEHR 350-1-1) available at your training office or online at: <http://www.hnd.usace.army.mil/to/pindex.htm>

Point of contact for this message is John Buckley. Telephone: 256-895-7431. Fax: 256-895-7497. E-Mail: John.P.Buckley@HND01.usace.army.mil.

Ctl No	Course Title	City	State	Start Date	End Date	Tuition
394	ADV STREAMBANK PROT	VICKSBURG	MS	10-Apr-00	14-Apr-00	\$1,990
67	ADVANCED HEC-RAS	DAVIS	CA	24-Jan-00	28-Jan-00	\$1,940
178	BASIC HEC-HMS	VICKSBURG	CA	8-May-00	12-May-00	\$1,790
86	CIVIL WORKS ORIENT	CHICAGO	IL	19-Jun-00	23-Jun-00	\$1,340
443	CLEAN AIR ACT	SACRAMENTO	CA	8-Feb-00	10-Feb-00	\$550
13	COASTAL ENGINEER	VICKSBURG	MS	1-Feb-00	10-Feb-00	\$2,490
19	COMPUTER APPL/ENGR	VICKSBURG	MS	24-Jan-00	28-Jan-00	\$2,020
21	CONCRETE 1--QV	VICKSBURG	MS	31-Jan-00	4-Feb-00	\$930
257	CONCRETE MAINT & REP	VICKSBURG	MS	10-Apr-00	14-Apr-00	\$1,240
257	CONCRETE MAINT & REP	VICKSBURG	MS	15-May-00	19-May-00	\$1,240
22	CONCRETE TECHNOLOGY	VICKSBURG	MS	27-Mar-00	31-Mar-00	\$1,540
255	CWM WORKSHOP	BILOXI	MS	29-Feb-00	2-Mar-00	\$800
28	DAM SAFETY	VICKSBURG	MS	13-Mar-00	16-Mar-00	\$1,570
28	DAM SAFETY	VICKSBURG	MS	8-May-00	11-May-00	\$1,570
40	EARTHWORK --QV	VICKSBURG	MS	24-Jan-00	28-Jan-00	\$1,090
360	ELECT SECUR SYS DES	HUNTSVILLE	AL	20-Mar-00	24-Mar-00	\$1,090

Ctl No	Course Title	City	State	Start Date	End Date	Tuition
373	ELECTRICAL DESIGN I	NORFOLK	VA	19-Jun-00	23-Jun-00	\$1,480
374	ELECTRICAL DESIGN II	HUNTSVILLE	AL	14-Feb-00	18-Feb-00	\$1,680
90	ELECTRICAL EXTERIOR	LAS VEGAS	NV	1-May-00	5-May-00	\$1,560
42	ELECTRICAL--QV	ST. LOUIS	MO	17-Jul-00	21-Jul-00	\$980
275	ENG/DES CONST WETLND	ORLANDO	FL	6-Mar-00	10-Mar-00	\$2,250
398	ENV REG APPL	OMAHA	NE	20-Mar-00	24-Mar-00	\$1,100
395	GEOTECH ASPECTS/HTW	DENVER	CO	22-May-00	26-May-00	\$1,190
219	GIS-HYDROLOGIC ENGR	DAVIS	CA	13-Mar-00	17-Mar-00	\$1,740
382	HVAC SYS CONSTR--QV	CHAMPAIGN	IL	1-May-00	5-May-00	\$1,030
222	HTRW RISK ASSESSMENT	OMAHA	NE	1-May-00	5-May-00	\$940
246	HVAC CONTROL O & M	CHAMPAIGN	IL	24-Apr-00	28-Apr-00	\$1,000
223	HW MANIFESTING	OMAHA	NE	17-Apr-00	21-Apr-00	\$990
74	MECHANICAL QV	HUNTSVILLE	AL	22-May-00	26-May-00	\$740
78	NATIONAL ELEC CODE	PORTLAND	OR	27-Mar-00	31-Mar-00	\$620
399	ORD & EXP RESPONSE	LAS VEGAS	NV	15-May-00	19-May-00	\$830
84	PAINT, COATINGS & QA	ARLINGTON	TX	14-Feb-00	18-Feb-00	\$840
85	PAVE DESIGN & CONST	VICKSBURG	MS	29-Feb-00	9-Mar-00	\$1,410
400	PAVEMENT CONST--QV	VICKSBURG	MS	25-Jan-00	3-Feb-00	\$1,450
115	PAVEMENT EVAL/REPAIR	VICKSBURG	MS	28-Mar-00	6-Apr-00	\$1,340
315	PCA FINANCE PLAN DEV	HUNTSVILLE	AL	13-Mar-00	17-Mar-00	\$1,650
315	PCA FINANCE PLAN DEV	SEATTLE	WA	15-Aug-00	18-Aug-00	\$1,650
224	PLAN FOR PROJECT EXEC	LAS VEGAS	NV	25-Jan-00	27-Jan-00	\$590
225	QA ENV SAMPL	HUNTSVILLE	AL	8-May-00	12-May-00	\$1,120
441	RAD WASTE PKG, TRNSP	ST LOUIS	MO	13-Jun-00	16-Jun-00	\$850
393	RECORDS MGT PROF DEV	HUNTSVILLE	AL	10-Apr-00	14-Apr-00	\$1,410
98	RESERVOIR ANALYSIS	DAVIS	CA	19-Jun-00	23-Jun-00	\$1,840
161	RIVER & WETLANDS	DAVIS	CA	11-Sep-00	15-Sep-00	\$1,870
351	SAFETY/HEALTH-HWS	TBD	TBD	5-Jun-00	9-Jun-00	\$1,040
247	SEISMIC STABILITY	VICKSBURG	MS	12-Jun-00	16-Jun-00	\$1,410
113	SOIL STRUC INTERACT	VICKSBURG	MS	20-Mar-00	24-Mar-00	\$2,050
285	STREAMBANK EROS/PROT	VICKSBURG	MS	27-Mar-00	31-Mar-00	\$1,960
228	TERC TAS ORDER ADM	TULSA	OK	25-Apr-00	28-Apr-00	\$560
164	WATER & WATERSHED	DAVIS	CA	17-Jul-00	21-Jul-00	\$1,700
261	WATERSHED WORK	BALTIMORE	MD	21-Aug-00	25-Aug-00	\$950

POC: JOHN BUCKLEY, CEHR-P-TO, 256-895-7431

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Open Discussion and Comments

None received for this month's issue.

(Editors' note: If you want to share your thoughts with our readers regarding a subject of general interest, send an email to the E&C News editors (charles.pearre@usace.army.mil or denise.massihi@usace.army.mil). We'll publish a synopsis of your comments next time).

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Editors' Notes

SUBSCRIBE TO ECNEWS

Engineering and Construction News uses a subscription list on the Corps List Server. The name of the list is LS-ECNEWS. The purpose of the list is to distribute the Civil Works and Military Programs Engineering and Construction community newsletter, *Engineering and Construction News*.

You can subscribe or unsubscribe to LS-ECNEWS by sending an e-mail message to majordomo@usace.army.mil with no subject line and only a single line of text in the message body. That single line of text should have the following format: **subscribe ls-ecnews** or **unsubscribe ls-ecnews**. The List Server system will automatically pick up your originating e-mail address from the message and add it to or delete it from the distribution list.

If you have any questions about the list server, see the List Server E-Mail Delivery System web page at <http://eml01.usace.army.mil/other/listserv.html>. Or you may contact either Denise Massihi or Charles Pearre if you have additional questions on the subscription list.

POC: CHARLES PEARRE, CECW-EP, 202-761-4531

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